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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/605,862	06/29/2000	Hiroaki Sudo	JEL 31207	7986

7590 12/03/2003

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EXAMINER

STEVENS, ROBERTA A

ART UNIT	PAPER NUMBER
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2665

DATE MAILED: 12/03/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/605,862

Applicant(s)

SUDO, HIROAKI

Examiner

Roberta A Stevens

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 June 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 7-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 7-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 7-14 are rejected under 35 U.S.C. 102(e) as being anticipated by Granata (U.S. 6009307).

3. Regarding claim 7, Granata teaches (figures 1-5) a radio communication apparatus comprising: a plurality of antennas; a receiver that receives a radio signal comprising a plurality of subcarrier signals through the plurality of antennas, the subcarrier signals comprising a plurality of data that are code division multiplexed and frequency division multiplexed; a detector that, on a per subcarrier basis, detects an amplitude level of radio signal; a selector that, on a per subcarrier basis, makes a comparison of the amplitude and selects one of the antennas through which the radio signal has the largest gain; and a despreader that, on a per subcarrier basis, despreads radio signal received through the selected antenna with a predetermined spreading code..

4. Regarding claim 8, Granata teaches (figures 1-5) a spreader that spreads a plurality of data with different spreading codes to produce spread data; a first multiplexer that code division multiplexes the spread data to produce division multiplexed data; a divider that divides the code division multiplexed data on a per chip basis to produce a data divided on a per chip basis; a

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second multiplexer that assigns the data divided on a per chip basis to respective transmit subcarrier signals and frequency division multiplexes the data divided on a per chip basis; and a transmitter that transmits a transmit signal through the plurality of antennas, the signal comprising the FDM data, wherein the second multiplexer assigns the data divided to the transmit subcarrier signal transmitted through the antenna selected by the selector.

5. Regarding claim 9, Granata teaches (figures 1-5) a calculator that calculates a ratio between an amplitude level of the selected signal and an average value of amplitude levels; and a mathematical divider that divides the data divided on a per chip basis.

6. Regarding claim 10, Granata teaches (figures 1-5) a comparator that outputs the ratio to the mathematical divider when the ratio is below or equal to a threshold level and outputs the threshold level to the mathematical divider when the ratio is above the threshold level.

7. Regarding claim 11 Granata teaches (figures 1-5) a radio communication apparatus comprising: a plurality of antennas; a receiver that receives a ratio signal comprising a plurality of subcarrier signals through the plurality of antennas, the signals comprising data that are code division multiplexed and frequency division multiplexed; a combiner that diversity combines the radio signal to produce a diversity combined signal; and a despreader that despreads diversity combined signal with a predetermined spreading code.

8. Regarding claim 12, Granata teaches (figures 1-5) a radio communication method comprising: receiving a radio signal comprising a plurality of subcarrier signals through a plurality of antennas, the signals comprising a plurality of data that are code division multiplexed and frequency division multiplexed; detecting,, on a per subcarrier basis, an amplitude level of radio signal; comparing the detected amplitude levels and selecting one of the antennas through

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which the radio signal gains the largest amplitude level; and dispreading, on a per subcarrier basis, the radio signal received through the selected antenna with a predetermined spreading code..

9. Regarding claim 13, Granata teaches (figures 1-5) a radio communication method comprising: receiving a radio signal comprising a plurality of subcarrier signals through a plurality of antennas, the signals comprising a plurality of data that are code division multiplexed and frequency division multiplexed; diversity combining the radio signal to produce a diversity combined signal; dispreading the diversity combined signal with a predetermined spreading code.

10. Regarding claim 14, Granata teaches (figures 1-5) a radio communication method comprising: receiving a radio signal comprising a plurality of subcarrier signals through a plurality of antennas, the signals comprising a plurality of data that are code division multiplexed and frequency division multiplexed; performing diversity processing of the received radio signal on a per subcarrier basis.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Hayashi (U.S. 5598404), Skold (U.S. 6574461 B1) and Meredith (U.S. 6006113) are cited to show the state of the art.

12. Any inquiry concerning the communication or earlier communications from the examiner should be directed to Roberta Stevens whose telephone number is (703) 308-6607. The examiner can normally be reached on Monday through Friday from 9:00 am to 5:30 p.m.

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13. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor can be reached on (703) 308-6602.

14. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the group receptionist whose telephone number is (703) 305-3900.

15. **Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to: (703) 872-9306

For informal draft communications, please label "PROPOSED" or "DRAFT"

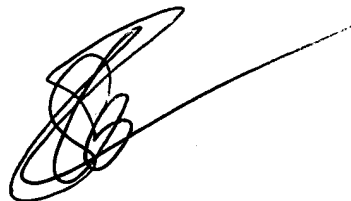
Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive,

Arlington, VA. Sixth Floor (Receptionist).

Roberta A. Stevens

Patent Examiner

11-28-03



STEVEN H.D NGUYEN
PRIMARY EXAMINER